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WE CLAIM:

1. A method to determine a nucleotide at a polymorphic locus in a nucleic acid sample, comprising the steps of:
amplifying a region of DNA comprising a polymorphic locus in the sample to form amplified DNA products using a primer which terminates at its 3' end at the polymorphic locus, wherein the primer comprises a 3' portion which is complementary to the region of DNA and a 5' portion which is identical in sequence to all or part of a probe on a solid support and not complementary to the region of DNA;
labeling the amplified DNA products to form labeled amplified DNA products;
~~hybridizing the labeled amplified DNA products to the probe on the solid support.~~
2. The method of claim 1 wherein the step of labeling couples a labeled nucleotide to a 3' end.
3. The method of claim 1 wherein terminal transferase catalyzes the step of labeling.
4. The method of claim 1 wherein the nucleotide is fluorescently labeled.
5. The method of claim 1 wherein the nucleotide is radioactively labeled.
6. The method of claim 1 wherein the nucleotide is enzymatically labeled.
7. The method of claim 1 wherein the nucleotide is epitopically labeled.
8. The method of claim 4 further comprising the step of:
optically detecting fluorescent label on the solid support.
9. The method of claim 8 wherein two primer pairs are employed, wherein the first primer of each of the first and second pairs of primers terminate at their 3' ends in distinct nucleotides, and wherein each 5' portion of each of said first primers is identical in sequence to all or part of a distinct probe at a known location on the solid support.
10. ~~The method of claim 8 wherein quantities of fluorescent label at known locations on the solid support are compared and a ratio of nucleotides at the~~

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~~polymorphic locus in the sample is determined~~

11. The method of claim 10 wherein the ratio of nucleotides at two or more polymorphic loci are determined simultaneously.
12. The method of claim 1 wherein the sample comprises DNA from two or more individuals.
13. The method of claim 1 wherein two or more regions of DNA, each of which comprises a polymorphic locus, are amplified in a single reaction mixture.
14. The method of claim 1 wherein the solid support is beads.
15. The method of claim 1 wherein the solid support is a microtiter dish.
16. The method of claim 1 wherein the solid support is a high density array.
- ~~17. A pair of primers which specifically amplify an allelic form of a polymorphic locus wherein a first primer comprises a 3' portion and a 5' portion, wherein the 3' portion is complementary to a region of DNA comprising the polymorphic locus and the 5' portion is identical in sequence to all or part of a probe on a solid support which is not complementary to the region of DNA, wherein the first primer terminates in a 3' nucleotide which is complementary to a selected allelic form of the polymorphic locus.~~
18. A kit comprising in a single container two or more of the pairs of primers of claim 17.
19. A kit comprising in a single container:
a pair of primers of claim 17 and
a solid support comprising at least two probes which are attached to known locations on the solid support, wherein the probe comprises a sequence which is identical to the 5' portion of the first primer.
20. The kit of claim 19 wherein the solid support is beads.
21. The kit of claim 19 wherein the solid support is a microtiter dish.
22. The kit of claim 19 wherein the solid support is a high density array.

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